Remarks

Claim 1 to 10 are cancelled and claims 11 to 20 are added and are the only claims pending in this application of which claims 11 and 20 are in independent form.

The independent claims 11 and 20 are clarified so that a quantity is determined which characterizes the spring constant acting for the actual or instantaneous degree of displacement. Also, at least one of the operator-controlled functions of the operator-controlled element is detected in dependence upon the determined quantity which characterizes the spring constant. In this way, applicants believe that added claims 11 and 20 better express the significance of the phrasing of the original claims 1 to 10.

The original claims had been formulated so that at least one of the operator-controlled functions of the operator-controlled element is detected in dependence upon the spring constant assigned to the instantaneous degree of actuation. In this way, the at least one of the operator-controlled functions is not detected in dependence upon the instantaneous degree of actuation but in dependence upon the spring constant assigned to this degree of actuation or displacement. Such a detection dependent from the spring constant inexorably requires that the spring constant itself be determined or a quantity is determined which characterizes the spring constant. The new claims 11 to 20 have clarified this situation and now are expressed in terms of

degrees of displacement rather than in degrees of actuation.

Claim 12 corresponds to original claim 2 and has been clarified by emphasizing that the quantity characterizing the spring constant is the slope of the time-dependent course of the measurement signal for the degree of displacement of the operator-controlled element. In this way, added claim 12 clearly expresses that a slope of the time-dependent course of the measurement signal is selected as a quantity characterizing the spring constant. The antecedent basis of this subject matter can be found in the applicants' disclosure, for example, on page 7, lines 20 to 30.

Claims 13 to 19 correspond to the original claims 3 to 9.

In the action, claims 5, 6 and 7 had been rejected under 35 USC 112, second paragraph, because of the terms "via actuation", "via an automatic reset" and "virtual jump-shaped reduction". Applicants submit that these terms should be clear in light of the disclosure. Thus, on page 7, line 30, to page 8, line 6, of the applicants' disclosure, where it is explained that:

> "When reaching a second actuating degree α_2 of the accelerator pedal 1, which is greater than the first actuating degree α_1, at a second time point t2, which is after the first time point t1, the spring force, which acts against the actuation of the accelerator pedal 1, is guided virtually jump-like back to the first time constant."

This relief of load or de-loading is characterized by a third spring constant and takes place, for example, by a removal of the additional spring or snap disk or the spring-loaded bearing or in another manner known per se.

On page 8, lines 23 to 28, of the applicants' disclosure, applicants describe that:

> "The relief of load of the spring force after the second time point t2 is effected by the third spring constant. The third spring constant is so selected that the third actuating degree α_3 is reached faster than it could ever possibly be reached by the maximum exercisable force of the driver for actuating the accelerator pedal 1."

In this way, it is clear that the automatic reset of the operator-controlled element of claims 15 and 16 is the same as the movement of the accelerator pedal from the second degree of actuation α_2 to the third degree of actuation α_3. This movement or displacement of the accelerator pedal does not take place because of the action of the driver but is effected by the third spring constant which, for example, is achieved by removal of a further spring and therefore leads to a virtual jump-like or abrupt reduction of the spring force. In claims 16 and 17, instead of the term "virtually jump-shaped reduction" applicants have substituted the term -- abrupt reduction --.

In light of the foregoing, applicants believe that added claims 15 to 17 should now be definite as required by the statute.

Claims 1 and 8 to 10 were rejected under 35 USC 102(b) as being unpatentable over Kato et al. Claims 11 and 20 are based on original claims 1 and 10 and the following will show that claims 11 and 20 patentably distinguish the applicants' invention over this reference.

From Kato et al, it is known to continuously measure the

position of the accelerator pedal [0047]. Furthermore, it is known from Kato et al to assign a first pedal pressing force to the normal operating range of the accelerator pedal from "fully closed" to "fully opened" and to assign a second pedal pressing force to the "kickdown" actuation range of the accelerator pedal. In this way, and based on the change of the pedal pressing force, the driver recognizes that the accelerator pedal has reached its kickdown position [0035]. In the subject matter of Kato et al, a correction of the measured value for the accelerator pedal position with the actually reached degree of actuation of the accelerator pedal takes place [0013].

Such a correction of the sensor for determining the degree of actuation of the operator-controlled element is not the subject matter of applicants' claims 11 and 20. Instead, claims 11 and 20 provide a reliable correlation of the degree of displacement or actuation of the operator-controlled element to the operator-controlled function wanted by the driver independent of the wear and the temperature drift of the sensor for determining the degree of actuation of the operator-controlled element and independently of the bearing play and the deformation especially of plastic parts of the operator-controlled element (especially of the accelerator pedal) so that the operator-controlled function wanted by the driver is reliably recognized and can be realized without the need of a sensor correction as set forth in Kato et al.

For this purpose, and in contrast to Kato et al, it is not the degree of actuation or displacement of the accelerator pedal itself which is determined in order to determine the

operator-controlled function wanted by the driver; instead, the spring constant, that is, a quantity which characterizes the spring constant, is determined and this results with the instantaneous actuation or displacement of the accelerator pedal. Thus, claim 11 now includes the features and limitations of:

> "determining a quantity which characterizes the spring constant corresponding to the degree of displacement; and,
>
> detecting at least one of said operator-controlled functions in dependence upon said quantity."

The operator-controlled function wanted by the driver is recognized based on this instantaneously determined spring constant. The quantity referred to above which characterizes the spring constant can, for example, be selected from the slope of a time-dependent course of the sensor signal for the degree of actuation or displacement of the operator-controlled element. Such an evaluation of the slope of the time-dependent course of the sensor signal is nowhere suggested in Kato et al. Indeed, in Kato et al, the pedal pressing force is described only with reference to the information of the driver by reaching the kickdown actuation range of the accelerator pedal [0035]. This information is, however, not evaluated by the control unit of Kato et al.

In view of the above, applicants submit that claim 11 should now patentably distinguish the applicants' invention over Kato et al and be allowable. Claim 20 parallels claim 11 in an apparatus context and should likewise now be allowable. The remaining claims 12 to 19 are all dependent from claim 11 so that

they too should now be allowable.

Claims 2 to 7 were rejected under 35 USC 103(a) as being unpatentable over Kato et al in view of Kuretake. Claims 12 to 17 replace claims 2 to 7 and the applicants have shown above that claim 11 patentably distinguishes their invention over Kato et al and will now show that Kuretake does not fill the void left by Kato et al.

Kuretake discloses a control unit for detecting a degree of opening of an accelerator pedal and the degree of opening of a throttle flap. The throttle flap is controlled in dependence upon the accelerator pedal. In this way, an opening speed or closing speed of the throttle flap is determined in accordance with a set value. Kuretake is concerned with the fastest possible response of the throttle flap and to prevent an overshoot thereof. In contrast to the applicants' invention, Kuretake relates neither to the determination of an operator-controlled function in dependence upon the displacement or actuation of the accelerator pedal nor as to an evaluation of the displacement or actuation of the accelerator pedal based on a quantity characterizing the instantaneously acting spring constant.

From the above, it can be seen that Kuretake lies even farther away from applicants' invention as set forth in claims 11 and 20 so that it cannot possibly fill the void left by Kato et al.

It is true that Kuretake discloses a time-dependent continuous determination of the actuation of an accelerator pedal (column 6, lines 11 to 16). The time-dependent trace of the

actuation of the accelerator pedal is, however, not evaluated, let alone, a determination of the slope of the time-dependent course of the degree of actuation of the accelerator pedal.

Accordingly, neither Kato et al nor Kuretake disclose the determination of a quantity, which characterizes the spring constant corresponding to the instantaneous degree of displacement, nor do the applied references relate to the detection of at least one of the operator-controlled functions of the operator-controlled element in dependence upon the determined quantity which characterizes the spring constant as set forth in applicants' claims 11 and 20.

In view of the above, it can be seen that Kuretake cannot be combined with Kato et al by our person of ordinary skill to arrive at the applicants' invention.

Claim 1 had been rejected under 35 USC 112, second paragraph, as being indefinite because claim 1 utilized the term "the degree of actuation" and that this was viewed as being a relative term. New claim 11 utilizes the term -- degree of displacement -- in lieu of "degree of actuation". The following will explain how the two degrees of displacement are defined by different spring constants and how the operator-controlled element determines the two degrees of actuation or displacement and how the relationship arises between the operator-controlled element, the two degrees of displacements (actuations) and the different spring constants. The term degree of displacement is simply the degree of displacement of the operator-controlled element such as the accelerator pedal, that is, the degree of displacement of the accelerator pedal between a fully released

accelerator pedal and an accelerator pedal which has been fully depressed. The relationship between the two different degrees of displacement or actuation of the accelerator pedal and the different spring constants as they are set forth in the independent claims 11 and 20 was already known at the time the applicants filed their patent application as shown in FIG. 2 of Kato et al. According to FIG. 2 of Kato et al, there is a first pedal pressing force in the normal operating range of the accelerator pedal which corresponds to a first spring constant and a second pedal pressing force different from the first pedal pressing force in the kickdown actuating range of the accelerator pedal which corresponds to a second spring constant.

In view of the fact the above features are known, applicants respectfully submit that a further clarification and/or limiting of their claims is not needed.

Reconsideration of the application is earnestly solicited.

Respectfully submitted,

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